



# RF EXPOSURE REPORT

**REPORT NO.:** SA140729C08A

**MODEL NO.:** DCH-G021

**FCC ID:** KA2CHG021A1

**RECEIVED:** Oct. 24, 2014

**TESTED:** Oct. 29 ~ Nov. 03, 2014

**ISSUED:** Nov. 04, 2014

**APPLICANT:** D-LINK CORPORATION

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U.S.A.

**ISSUED BY:** Bureau Veritas Consumer Products Services  
(H.K.) Ltd., Taoyuan Branch

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## RELEASE CONTROL RECORD


ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA140729C08A	Original release	Nov. 04, 2014

## 1. CERTIFICATION

**PRODUCT:** Wireless smart hub  
**MODEL:** DCH-G021  
**BRAND:** D-Link  
**APPLICANT:** D-LINK CORPORATION  
**TESTED:** Oct. 29 ~ Nov. 03, 2014  
**TEST SAMPLE:** ENGINEERING SAMPLE  
**STANDARDS:** **FCC Part 2 (Section 2.1091)**  
**KDB 447498 D03**  
**IEEE C95.1**

The above equipment (Model: DCH-G021) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**PREPARED BY** :  , **DATE:** Nov. 04, 2014  
Polly Chien / Specialist

**APPROVED BY** :  , **DATE:** Nov. 04, 2014  
Ken Liu / Senior Manager

**NOTE:** This is a duplicate report of SA140729C08. The difference compared with the original report is adding one adapter. Due to no effect on any test item and we didn't re-test.

## 2. RF EXPOSURE

### 2.1 LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

FREQUENCY RANGE (MHz)	ELECTRIC FIELD STRENGTH (V/m)	MAGNETIC FIELD STRENGTH (A/m)	POWER DENSITY (mW/cm <sup>2</sup> )	AVERAGE TIME (minutes)
<b>LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE</b>				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

### 2.2 MPE CALCULATION FORMULA

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

R = distance between observation point and center of the radiator in cm

### 2.3 CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 2.4 CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

Mode	Frequency band (MHz)	Conducted power (mW)	Conducted power (dBm)	Antenna Gain (dBi)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WiFi 2.4G	2412~2462	274.157	24.38	2.10	0.088	1
BT EDR	2402~2480	9.016	9.55	2.10	0.003	1
Zigbee	2405 ~ 2480	79.433	19.00	1.72	0.023	1

\*\*Zigbee can transmit simultaneously with WLAN or BT but not WLAN and BT. WLAN and BT cannot transmit at the same time.

### CONCLUSION:

Zigbee can transmit simultaneously with WLAN or BT, the formula of the calculated MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

### Conducted power:

$$\text{WiFi 2.4G} + \text{Zigbee} = 274.157 + 79.433 = 353.59(\text{mW}) = 25.48(\text{dBm}) < 30(\text{dBm})$$

$$\text{BT EDR} + \text{Zigbee} = 9.016 + 79.433 = 88.449(\text{mW}) = 19.47(\text{dBm}) < 30(\text{dBm})$$

### Power density:

$$\text{WiFi 2.4G} + \text{Zigbee} = 0.088 + 0.023 = 0.111$$

$$\text{BT EDR} + \text{Zigbee} = 0.003 + 0.023 = 0.026$$

Therefore the maximum calculations of the above situations are less than the "1" limit.

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